Title (en)

FLUID DAMPING DEVICES

Title (de)

HYDRAULISCHER DÄMPFER

Title (fr)

SYSTEMES D'AMORTISSEMENT A FLUIDE

Publication

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Application

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Abstract (en)

[origin: WO9604492A1] The invention relates to a fluid device (20) for providing high load carrying capacity in one direction and which provides a high level of damping along a substantially perpendicular direction. This is achieved by a device which includes an inner member (22) and an outer member (24) and a flexible section (28) causing a connection therebetween, said flexible section (28) exhibiting a substantially higher stiffness along one axis, a fluid cavity (34) formed within said device (20), a piston (38) attached to one of said inner member (22) and said outer member (24), said piston (38) being substantially surrounded by, and submersed in said fluid. In one embodiment, the piston (38) includes a piston area Ap which is substantially greater than 1/2 the fluid cavity area Ac. Movement of the piston (38) within the fluid cavity (34) causes a damping force comprising a throttling component as well as a viscous shear component. Means are disclosed for substantially increasing the viscous shear component and throttling component including novel piston concepts. This invention has particular utility for use in hingeless rotor systems for helicopters.

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